



**IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE**

Patent Application

Inventors: Krishnan Kumaran et al

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Examiner: Willie J. Daniel JR

Title: ASSIGNING FREQUENCY CHANNELS IN A CELLULAR SYSTEM

DECLARATION UNDER 37 C.F.R. § 1.132

- 1) In 1994, I, Simon C. Borst, received a Ph.D. from Tilburg University, Tilburg, The Netherlands. In 1990, I received a M. of Sc. from the Department of Applied Mathematics, University of Twente, Enschede, The Netherlands.
- 2) In 1996, I became a Member of the Technical Staff at Bell Laboratories, Lucent Technologies, Inc. of Murray Hill, New Jersey. Presently, I am a part-time Member of the Technical Staff at Bell Laboratories. I also hold part-time positions as a Senior Research Scientist in the Department of Probability, Networks & Algorithms, Center for Mathematics & Computer Science, Amsterdam, The Netherlands, and as a Professor of Stochastic Operations Research, Department of Mathematics & Computer Science, Eindhoven University of Technology, Eindhoven, The Netherlands.
- 3) I am an author or co-author on more than about 60 scientific publications. My scientific research includes or has included analysis, design, and control of stochastic systems; queuing theory; performance analysis of computer systems and networks; and wireless communication systems.
- 4) My professional activities include being:
 - an associate editor for *Operations Research*,
 - an area editor for *Operations Research Letters*, and

an associate editor for *Performance Evaluation*.

5) I am one of the joint authors of the article “Wireless Simulation and Self-Organizing Spectrum Management” by S.C. Borst et al, Bell Labs Technical Journal, vol. 2, no. 3 (1997) pages 81 – 98 (Herein, referred to as “Borst article”).” In preparation for this Declaration, I reread the Borst article.

6) Based on my review of the Borst article and my special scientific training and experience, I conclude that the Borst article describes using a simulation tool to predict or evaluate the performance of one or more channel assignment algorithms in a wireless system. The Borst article describes using the simulation tool to evaluate a wireless system’s global performance based on measurements of properties such as blocking rates, call drop rates, and call handoff rates in a simulation of the system. For example, the description of the Borst article at page 82, last paragraph, page 83; first paragraph; and Figures 7 – 10 supports this conclusion.

7) Based on my review of the Borst article and my special scientific training and experience, I find that page 82, right col.; page 83, right col.; page 84, right col.; and page 90 of the Borst article do not disclose or suggest sending lists of channel rankings to physical base stations of a wireless system, wherein the lists are produced by a simulation of the system.

8) Based on my review of the Borst article and my special scientific training and experience, I find that the Borst article, as a whole, does not disclose or suggest sending lists of channel rankings to physical base stations of a wireless system, wherein the lists were produced by a simulation of the system. Rather than teaching the sending of such lists to physical base stations, the Borst article discloses using a dynamical simulation to predict and/or evaluate the global performance of a channel allocation algorithm in a wireless system. Borst specifically states:

The simulation tool facilitates analysis of the new channel allocation scheme before implementation is completed The primary objective of the simulation study is to quantify the macroscopic effects of algorithms performed

locally at each base station on the global performance of the network. Global performance measures of particular interest include call blocking rates, voice quality measures, and the average number of handoffs per call. Service providers require substantiation of such performance effects before deploying critical resource allocation functionality in their networks.

Borst article, page 82, last par., to page 83, first par.

The above portion of the Borst article describes the use of a simulation to predict the global performance of a wireless system for a particular channel allocation algorithm.

The Borst article does not disclose or suggest that the lists of channel allocations that are produced during the course of the simulation are then, sent to physical base stations of the wireless system. Rather than disclosing sending of such lists to physical base stations, e.g., for use in actual operation, the Borst article discloses using the lists during the simulation to obtain a prediction for the global performance of the wireless system.

9) I herein certify that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I also understand that willful false statements and the like are punishable by fine, imprisonment or both under 18 U.S.C. 1001 and that willful false statements and the like may jeopardize the validity of the application-at-issue or any patent issuing thereon.

Executed on: June 2, 2005
Date


Simon C. Borst